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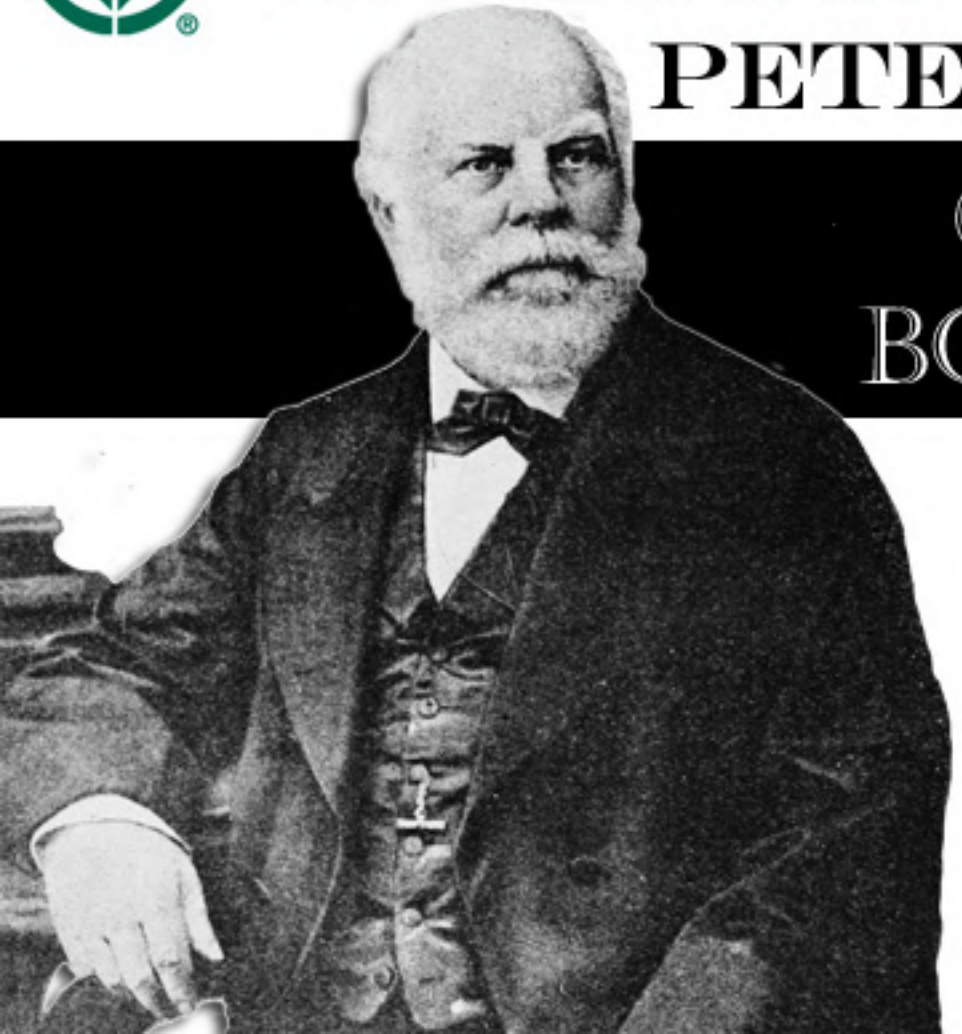


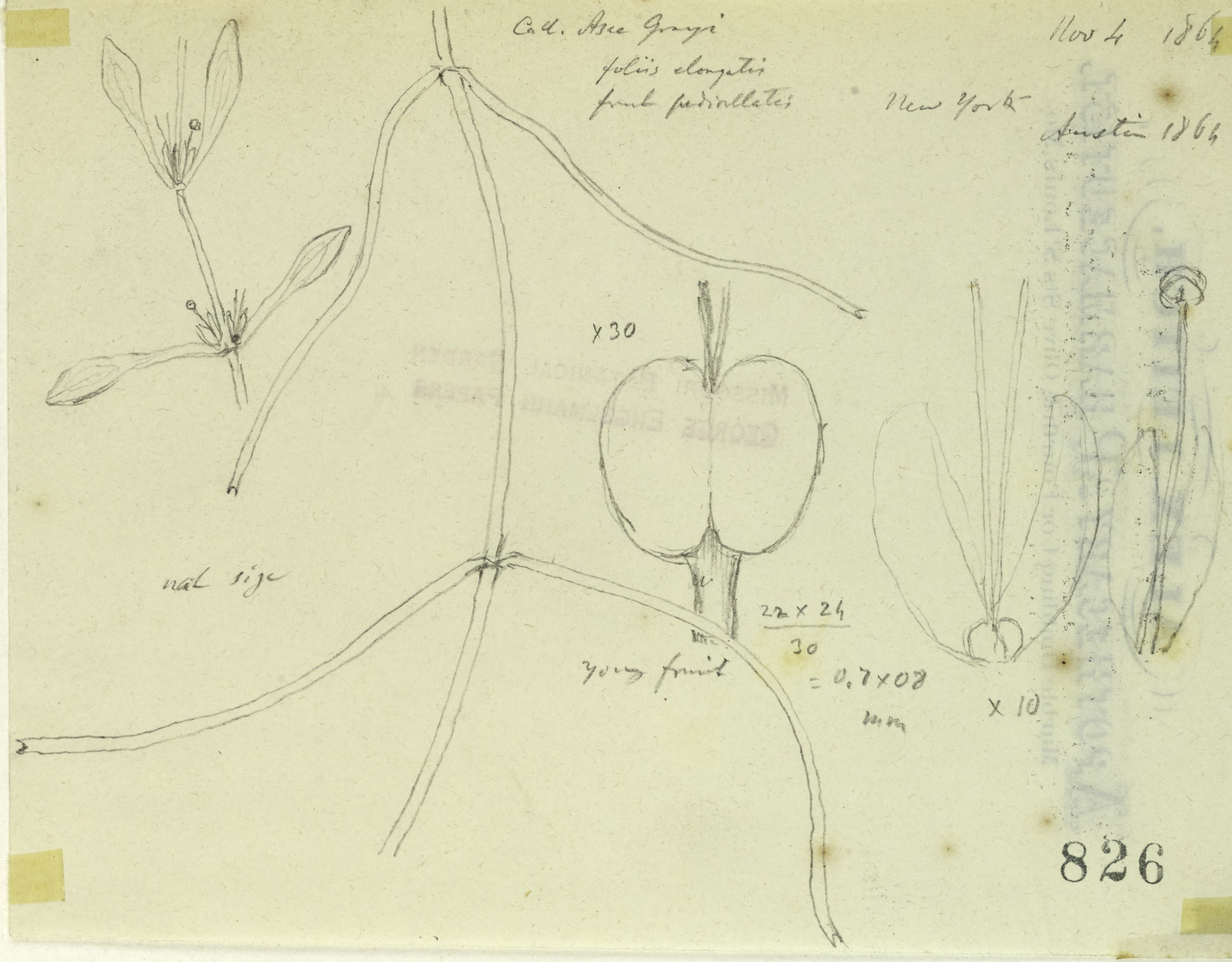
Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Cal. Acer Grayi
foliis elongatis
fruit pedicellatis

Nov 4 1864

New York

Austin 1864



826

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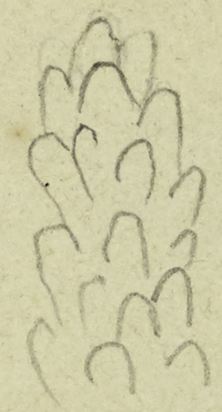
June 25 1864

Callitriche

(terrestris)

American Bottom 18th July 1845

×30



stigma
× 150

upper 4th or 3?
of style stigmatic

×10

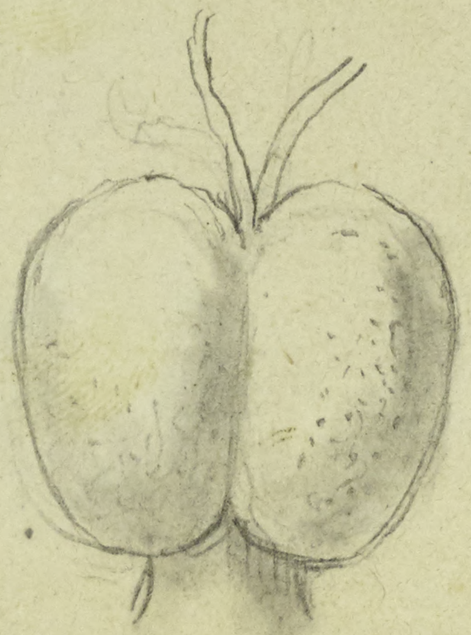
827

×30

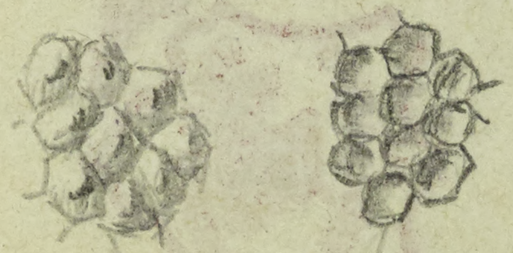
abortive stamen
& bracts –
bracts usually small
or absent

×30

$\frac{25 \times 22}{30} = 0.8 \times 0.7$ mm



styles breaking off – dry specimen?



roughness of nut –
– surface × 150 no
rather reticulate!

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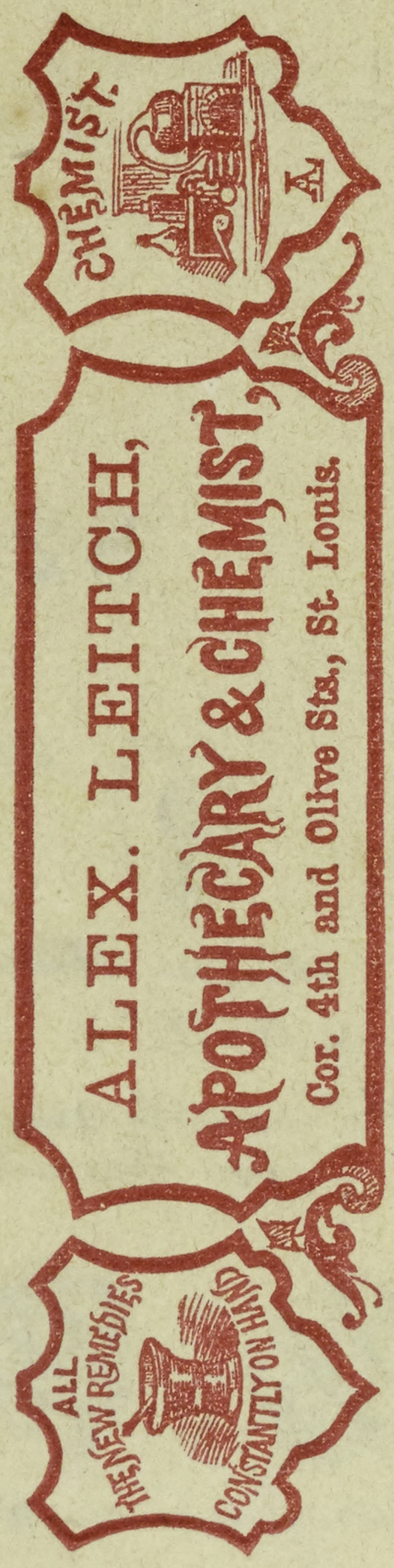

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Callitriche

Little Rock Ark 1835

June 26 1864

$\frac{23 \times 23}{30} = 0.8 \times 0.8$ in.

X30

fruit not ripe

×10

lateral veins very indistinct

no styles even on young fruits observed — specimens poor — emargination of fruit very marked — bulging out at base very indistinct.

828

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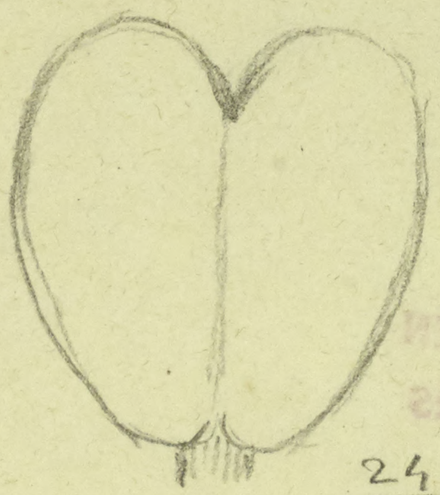

Callitriche Asa Gray 829 Octob 9 1864

„C. Getarea"

„C. autumnalis American" Reference scrips fide Durand.

forma submersa setacea

fructus immaturi (sterilis?)

$\frac{24 \times 25}{30} = 0.8 \times 0.8$ mm

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Saint Louis, Mo.
HERBARIUM
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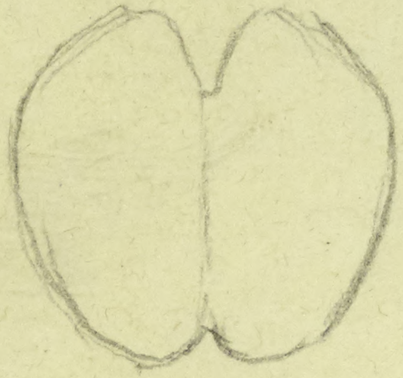
Callitriche Asa Gray Octob 9 1864

Mead, Augusta, Illinois (Hoshak)

form linearis submersa microsp.



$\frac{21 \times 22}{30} = 0.7 \times 0.7$ mm

830

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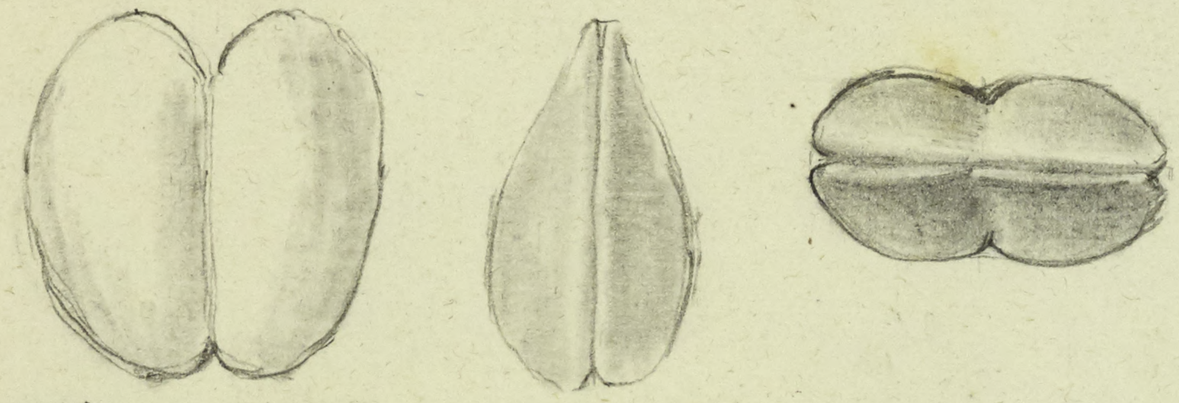
Callitriche Asae Gray Oct 10th 1864

submersa linearis

×30



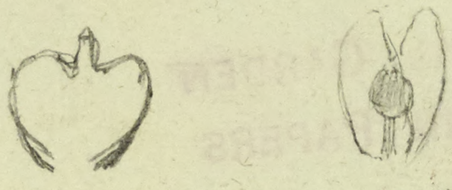
$\frac{21 \times 21}{30} = 0.7 \times 0.7$ mm

"C. linearis"

Florida, Rugel

– 46 HD Wilson

×30



pistill with abortive style without bracts

abortive anther with bracts

anthers in submersed plants always abortive, but usually with small bracts, while the pistils are most frequently bracteless – often no anthers at all

831

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Callitriche

832

Oct 8 1864

Wright Texas ; Hb Gray

aquatica latifolia

$\frac{18 \times 21}{30} = 0.6 \times 0.7$ mm

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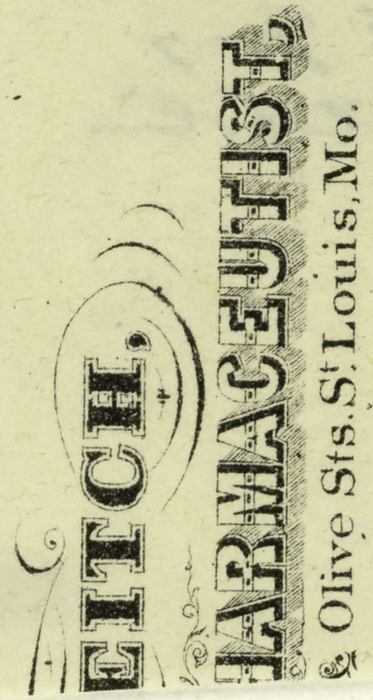

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Callitriche Asa Gray Oct 8 1864

forma heterophylla elongata

Connecticut, Eaton leg

Herb Gray

x30

$\frac{24 \times 20}{30} = 0.8 \times 0.7$ mm

833

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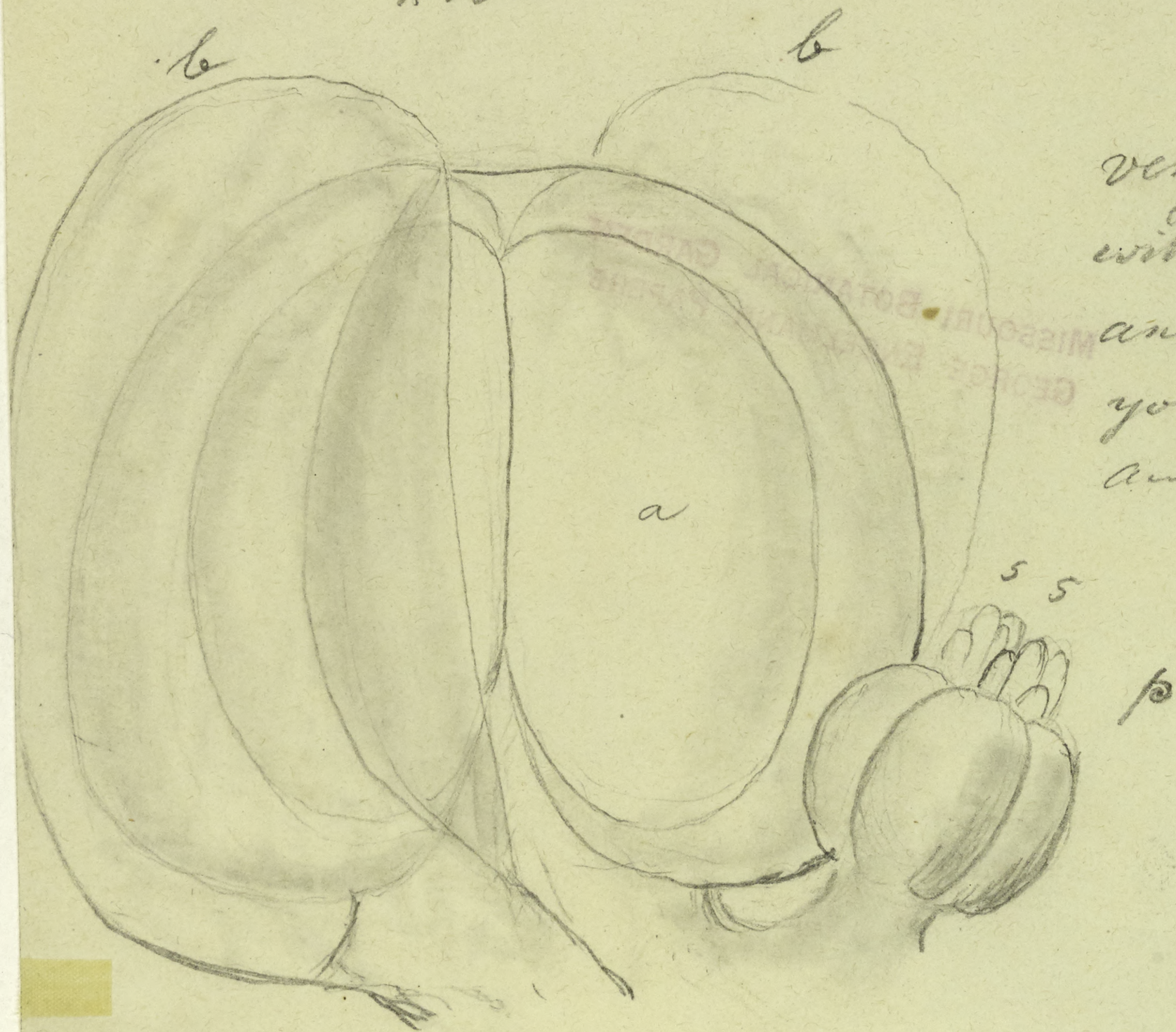
Coll. Asa Gray

Octo 2 1864

Lutifolia aquatica

Athens Ala. E. Hale 1861

× 150



very young anther, a
with 2 bracts, b b
and an extremely
young pistill p
and the rudiments
of 2 stigmata

834

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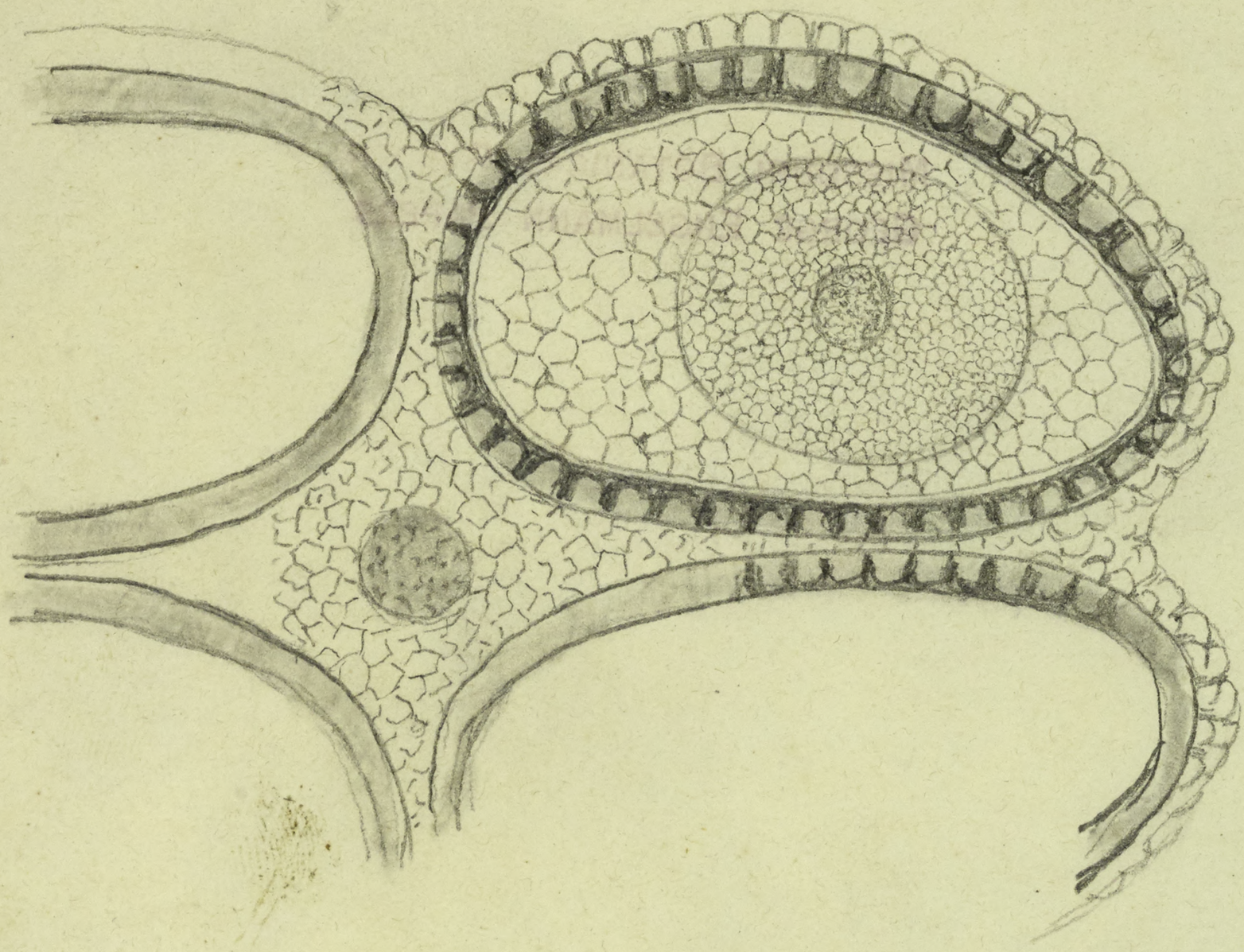
Calochortus Amoenus Gray Oct 5 1864
Athens Ill. S Hall



Sect of fruit
× 150

835

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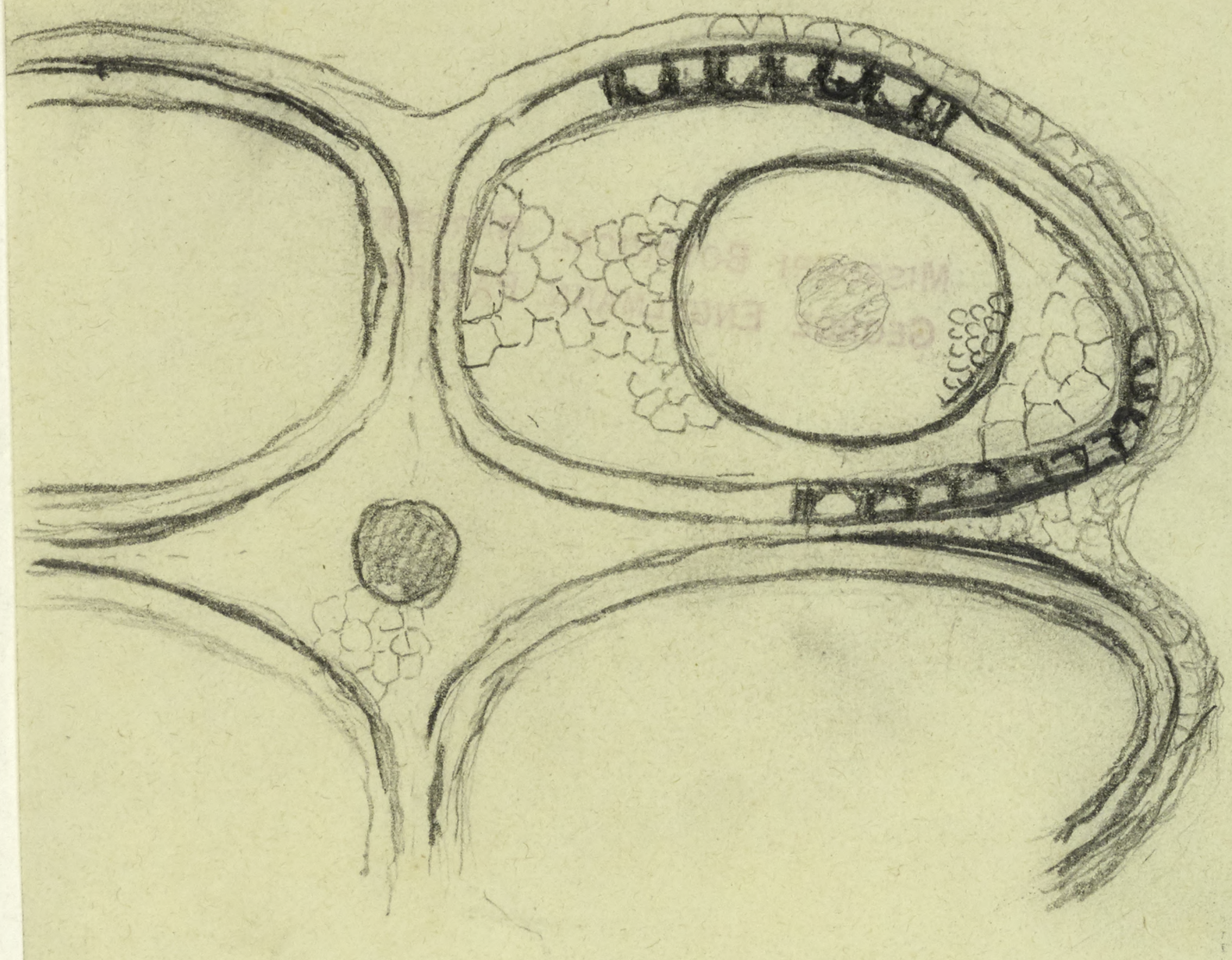
6

12 300



836

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Coll. Asa Gray
van Liewen

Nov 4 1862

Brooklyn N.Y.

Cadwallader leg. 1864

x 30

23 x 21 / 60 mm

24 x 22 / 60 mm

0.8 x 0.7 mm

837

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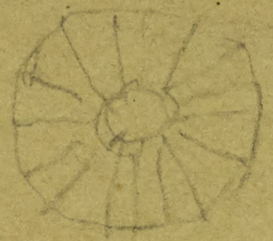
Coll. Asa Gray Dec 5 1864

Palisades April 2 — 1864

×286

×150



838

stellate hair

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cm
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cm
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Alabama Buckley March 16 1861

i Ala. Torrey

forma brevifolia

Calt. heterophylla

22 x 20

= 0.8 x 0.7

839

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March 16 1865

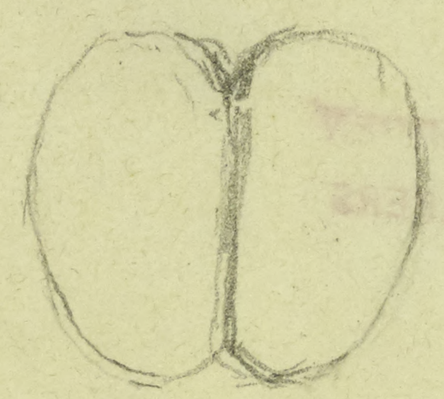
Coll. heterophylla

forma subnuda Lowanii

Deerfield Mass

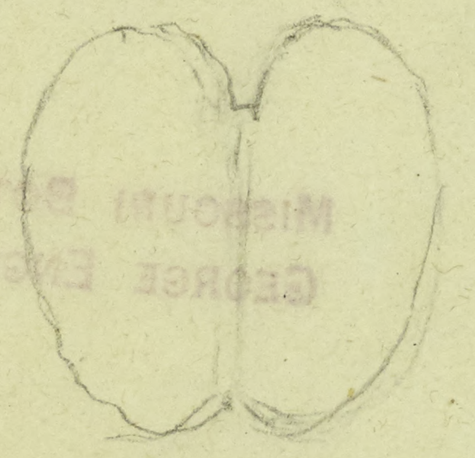
in Mt Tom

840



$\frac{23 \times 20}{30}$

= 0.8 × 0.7 mm



$\frac{24 \times 24}{30}$

0.8 × 0.8 mm

fruit from same specimen

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cm
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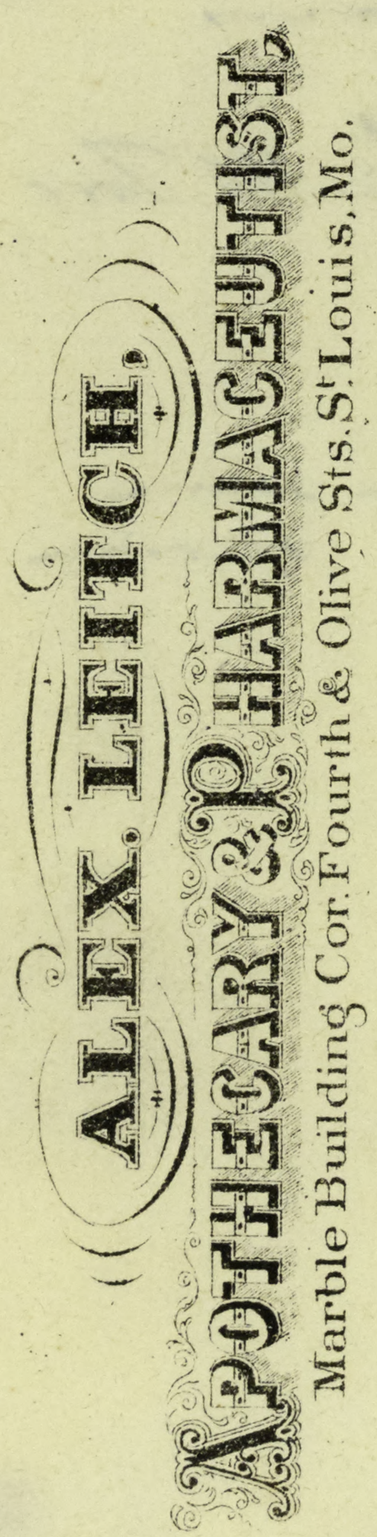

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Cell. chlorophylla

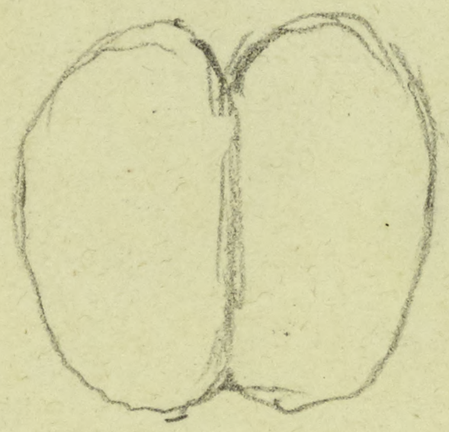
Mard

forma gemina

Branch of Blanco River, Texas

Chs Wright

det HG Tony



0.8 x 0.8 mm

841

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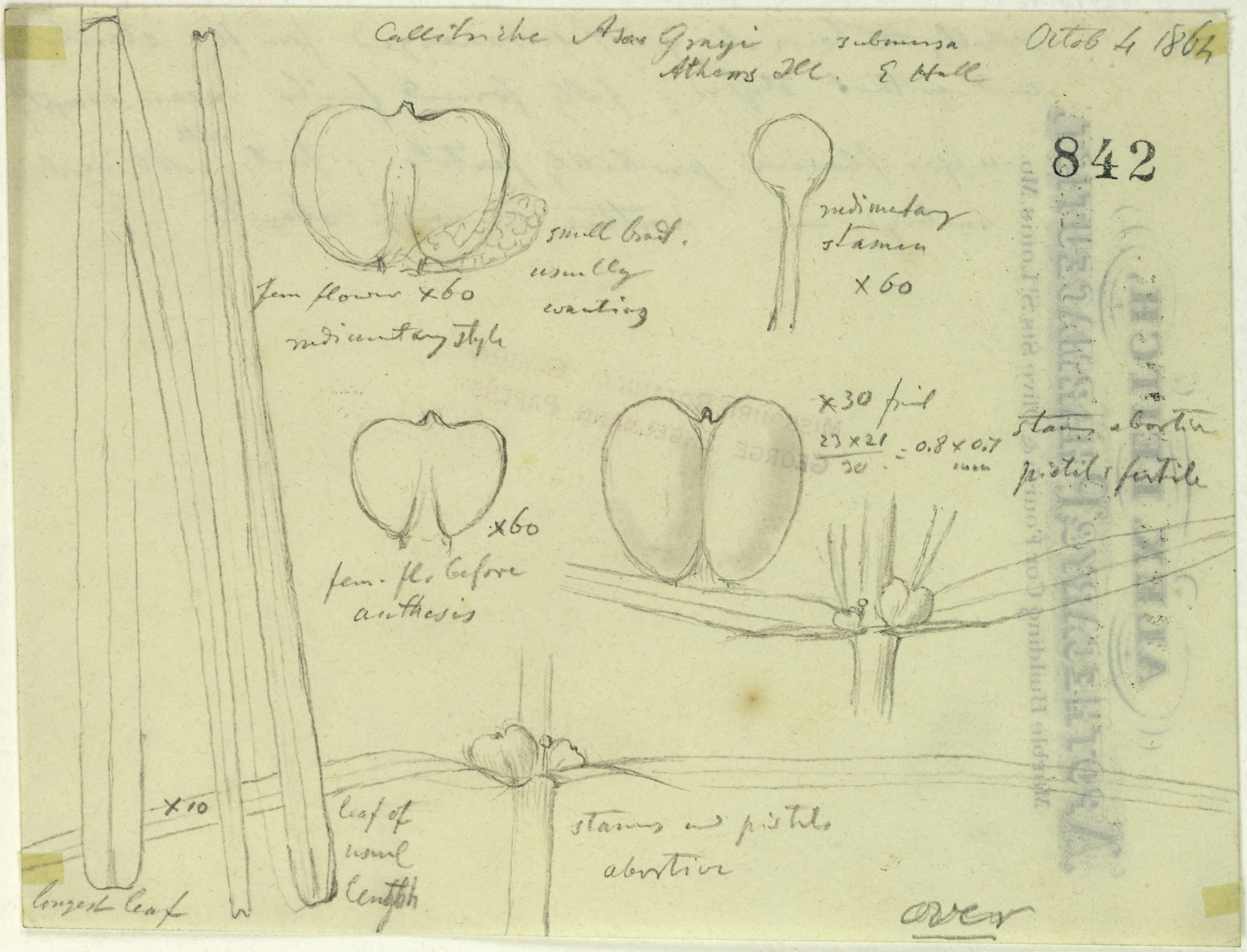
Callitriche Asa Gray: submersa
Athens Ill. E Hall
Octob 4 1864

842



over

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probably the lowest q. with submerged fem fl. sterile
and without styles; fully formed fruits seem empty.
upper flowers probably fertile; fruit with well developed
embryo — anthers always sterile

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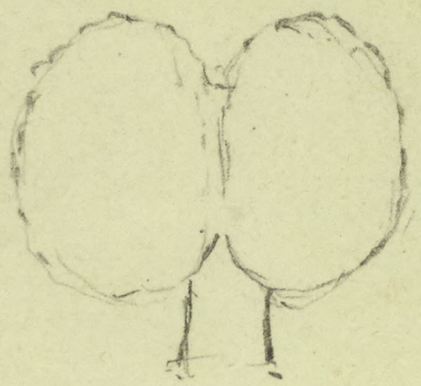
Callitriche Austini

March 14 1865

Louisiana Dr Hale in Herb Torrey

x 30

other specimens have peduncules of ordinary length



wet woods
Ohio, Lea
in Herb Torrey

843

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interrupted descent and ascent took place from January to December, we find in 1862 some interruptions in the steps of that ladder. The electricity in February, 1862, is about four degrees higher than that of January, April somewhat higher than March, and July is the lowest instead of September in 1861. These trifling irregularities may be accounted for by differences in temperature and relative humidity, and by a greater number of thunderstorms in 1862. January of 1862, for instance, was so unusually rainy, that its relative humidity too was unusually high, diminishing thus electricity. But the general features of distribution of electricity throughout the year are apparent in both years, and we may in that respect divide the twelve months of each year into two or three groups. Computing the months which give the highest electricity and those which give the lowest in each year, we find that in both years the months of January, February, March, April, November and December exhibit the highest, and the months of May, June, July, August, September and October the lowest electricity. The first group gives

The aggregate monthly mean of	71.5	degrees of	electricity	in 1861
and	74.6	"	"	" 1862
While the second group gives	29.0	"	"	" 1861
and	25.7	"	"	" 1862

The second group prevailed therefore in 1861, and the 1st in 1862.

Or we may divide the twelve months of each year into three groups. The first group with the highest electricity is formed by the months of January, February, November and December; the second with a mean electricity by the months of March, April, May and October; and the third with the lowest electricity by the months of June, July, August and September.

The aggregate monthly mean of

The first group in 1861 is	52.9	—in 1862,	54.6
The second " "	33.5	"	35.2
The third " "	14.1	"	10.5

Thus in 1861 the third group prevailed, and in 1862 the first and second. But these differences are so well balanced throughout the year, that the mean of the whole year in 1861 and in 1862 is exactly the same, namely, 8.4. Such an identity in the yearly result, even to decimals, is of course not to be expected every year; but it seems to prove, at least, that the yearly mean of electricity is as constant as that of temperature, of relative humidity, and of atmospheric pressure.

The third table, showing the daily periodicity of atmospheric electricity, confirms the daily two maxima and two minima of electricity as an undeniable fact.

843A
25-30
0 1 2 3 4 5 6 7 8 9 10
cm
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VI. The appearance of negative electricity was connected in

1861. No. times.	1862. No. times.	
30	32	with thunderstorms.
23	28	with rains without thunder and lightning.
20	4	with dry storms (without rain and without thunder and lightning).
4	3	with snow.
1	0	with fog.
78	67	

VII. *Relation of Rain and Snow to Electricity.*

Rain without thunderstorm was accompanied

	By Positive Electricity.		By Negative Electricity.		By no Electricity.	
	In 1861.	In 1862.	In 1861.	In 1862.	In 1861.	In 1862.
January	7	5	3	2	.....	2
February	2	1	4	1	.....	.....
March	.....	5	6	4	.....	.....
April	8	6	7	11	.....	1
May	10	7	1	1	3	1
June	7	1	.....	.....	.....	3
July	2	4	.....	.....	.....	3
August	3	.....	1	.....	1	2
September	4	.....	.....	1	4	8
October	3	1	1	1	7	1
November	2	3	.....	7	.....	7
December	2	3	.....	.....	.....	6
	50 + el.	36 + el.	23 — el.	28 — el.	15 no el.	34 no el.

Snowing was accompanied

	By Positive Electricity.		By Negative Electricity.		By no Electricity.	
	In 1861.	In 1862	In 1861.	In 1862.	In 1861.	In 1862.
January	3	9	.....	2	.....	.....
February	12	8	.....	1	.....	.....
March	3	12	.....	.....	.....	.....
October	.....	1	.....	.....	.....	.....
November	.....	4	.....	.....	.....	.....
December	5	2	2	.....	.....	1
	23 + el.	36 + el.	2 — el.	3 — el.	.....	1 no el.

REMARKS.

The monthly mean of atmospheric electricity in 1862 was not quite so regular as that in 1861. While in 1861 an un-

6/115
20
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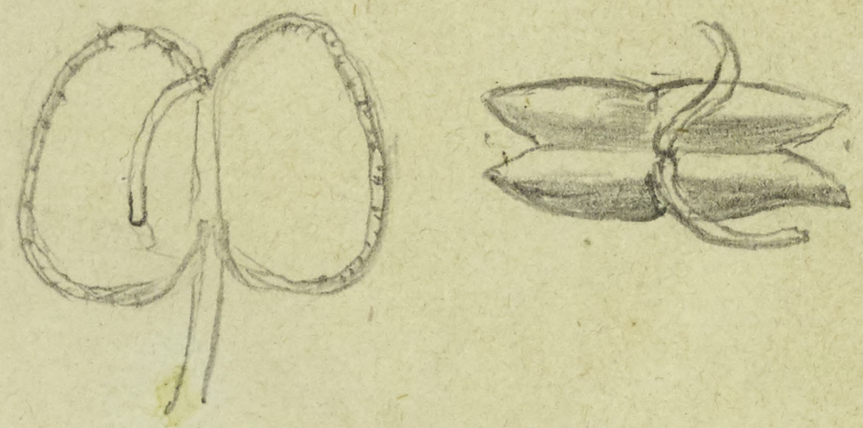
x30

Callitriche Engelhardtii Austin
C. deflexa A Braun apd. Hegelm

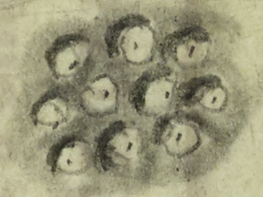
Hoboken, Austria

June 1864

844

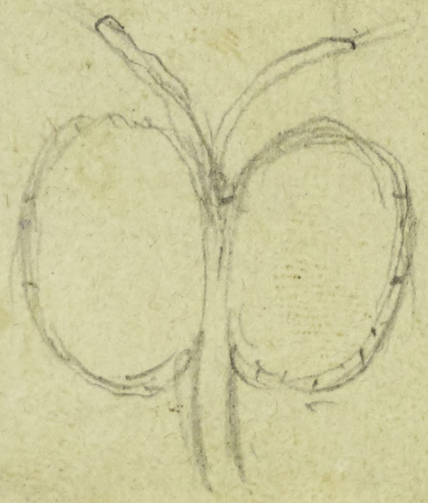


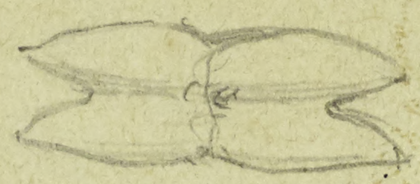
style, shorter than fruit; subpersistent
petiolar or recurved



reticulated seed, with pale pits

Memphis
Fendler





Fayetteville Arkansas

diam. 20–22 mm
hight 15–16 mm
Thickness 8 mm

Divid
by 30

0 1 2 3 4 5 6 7 8 9 10
cm
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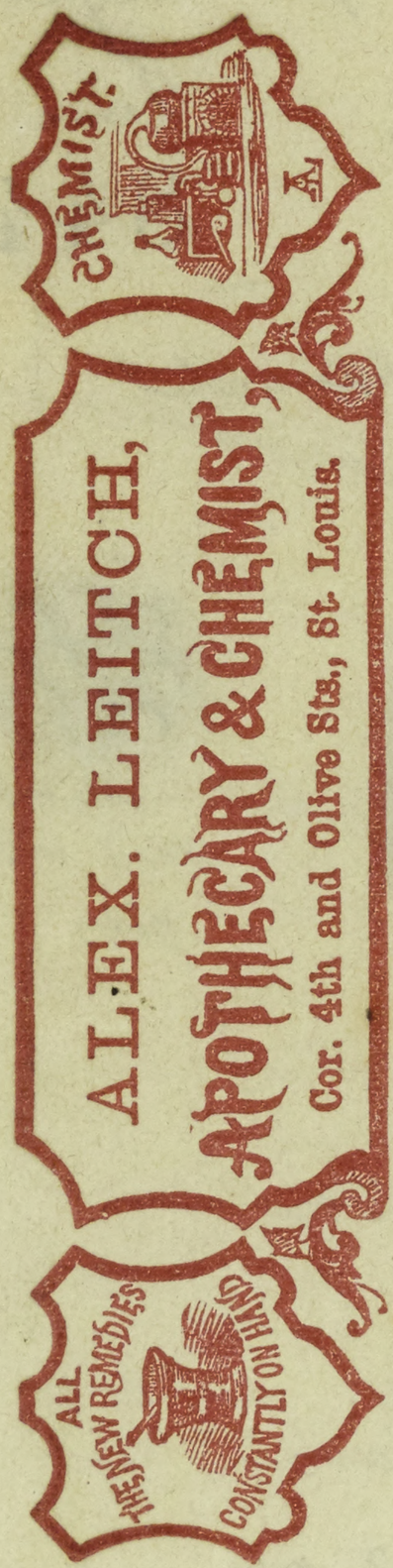
MISSOURI BOTANICAL GARDEN



MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

0 1 2 3 4 5 6 7 8 9 10
cm
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Cultivated

Sept 14th

South America

Baldwin

ex Herb Schweinitz

in Herb Acad Phil

x30

branch

845

0 1 2 3 4 5 6 7 8 9 10
cm
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MISSOURI BOTANICAL GARDEN

ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

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0 cm 1 2 3 4 5 6 7 8 9 10
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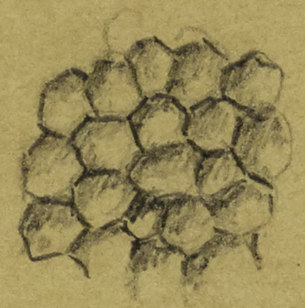
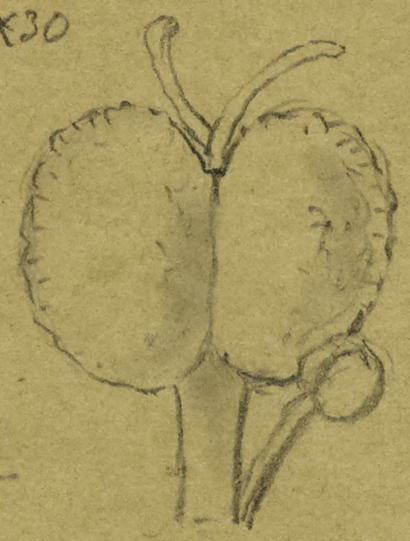
Callitriche Austini Nov 6. 1864

Palisades N.Y. Austin 1864

x 150



x30



$\frac{21 \times 16}{30}$

= 0.7 x 0.5 mm

x 280

x 540

x60

x 150

(Dec 5)

Surface parenchyma of nervine fronds — cells with or without small crystals; curious system of cross fibres, isolated, where the cells are torn off — what is it?

They are the fibre cells of the

846

0 1 2 3 4 5 6 7 8 9 10
cm
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Alex. Leitch,

APOTHECARY & CHEMIST,

Cor. 4th & Olive Sts., St. Louis.

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